

WHAT IS CLAIMED IS:

1 1. A method for organizing computer messages generated by a computer script analyzer,  
2 the method comprising:  
3 analyzing a computer script to generate a plurality of comments about the computer  
4 script, each comment of the plurality of comments corresponding to a particular portion of the  
5 computer script, each comment identifying a property of the corresponding portion of the  
6 computer script;  
7 reordering the plurality of comments so as to group together sets of comments having  
8 substantially similar identified properties; and  
9 generating a result comprising a subset of the plurality of comments ordered in  
10 grouped sets.

1 2. A method for organizing warning messages generated by a computer program  
2 analyzer, the method comprising:  
3 analyzing a computer program to generate a plurality of warning messages based upon  
4 potentially erroneous portions of the computer program, each warning message of the  
5 plurality of warning messages identifying at least one potential error in the computer  
6 program;  
7 inferring from a subset of the plurality of warning messages at least one suggested-fix  
8 heuristic corresponding to each identified potential error in the subset of the plurality of  
9 warning messages;  
10 associating each suggested-fix heuristic with the warning message containing the  
11 corresponding identified potential error;  
12 reordering the plurality of warning messages so as to group together sets of warning  
13 messages having substantially similar associated suggested-fix heuristics; and  
14 generating a result comprising a subset of the plurality of warning messages ordered  
15 in grouped sets.

1 3. The method of claim 2, further comprising sub-grouping together at least one subset  
2 of at least one of the grouped sets of warning messages, wherein each subset of warning  
3 messages identifies potential errors with respect to a particular aspect of the computer  
4 program.

1 4. The method of claim 3, where the particular aspect of the computer program  
2 comprises at least one of a variable, an object, an object reference, a location in the computer  
3 program, and a condition.

1 5. The method of claim 2, further comprising super-grouping together at least one  
2 superset of a plurality of the grouped sets of warning messages, wherein each superset of  
3 warning messages identifies potential errors with respect to a particular aspect of the  
4 computer program.

1 6. The method of claim 5, where the particular aspect of the computer program  
2 comprises at least one of a variable, an object, an object reference, a location in the computer  
3 program, and a condition.

1 7. The method of claim 2, wherein the generated result further comprises, for each  
2 grouped set, a representative suggested-fix heuristic representing the substantially similar  
3 associated suggested-fix heuristics.

1 8. The method of claim 7, wherein the generated result does not include the substantially  
2 similar associated suggested-fix heuristics.

1 9. The method of claim 2, wherein the generated result identifies, for each grouped set, a  
2 representative potential error representing the identified potential errors of the warning  
3 messages in the grouped set.



7 determining an actual error based on the substantially similar inferred potential  
8 solutions of the grouped set of identified potential errors.

1 17. The method of claim 16, wherein the substantially similar inferred potential solutions  
2 and the grouped set of identified potential errors have characteristics suggestive of the actual  
3 error.

1 18. A computer program product for use in conjunction with a computer system, the  
2 computer program product comprising a computer readable storage medium and a computer  
3 program mechanism embedded therein, the computer program mechanism comprising:  
4 a computer script;  
5 a computer script analyzer for analyzing the computer script to generate a plurality of  
6 comments about the computer script, each comment of the plurality of comments  
7 corresponding to a particular portion of the computer script, each comment identifying a  
8 property of the corresponding portion of the computer script;  
9 a grouping module for reordering the plurality of comments so as to group together  
10 sets of comments having substantially similar identified properties; and  
11 a result file for generating a result comprising a subset of the plurality of comments in  
12 grouped sets.

1 19. A computer program product for use in conjunction with a computer system, the  
2 computer program product comprising a computer readable storage medium and a computer  
3 program mechanism embedded therein, the computer program mechanism comprising:  
4 a computer program;  
5 a computer program analyzer for analyzing the computer program to generate a  
6 plurality of warning messages based upon potentially erroneous portions of the computer  
7 program, each warning message of the plurality of warning messages identifying at least one  
8 potential error in the computer program;

9 an inference engine for inferring from a subset of the plurality of warning messages at  
10 least one suggested-fix heuristic corresponding to each identified potential error in the subset  
11 of the plurality of warning messages;  
12 an association module for associating each suggested-fix heuristic with the warning  
13 message containing the corresponding identified potential error;  
14 a grouping module for reordering the plurality of warning messages so as to group  
15 together sets of warning messages having substantially similar associated suggested-fix  
16 heuristics; and  
17 a result file for generating a result comprising a subset of the plurality of warning  
18 messages ordered in grouped sets.

1 20. The computer program product of claim 19, wherein the grouping module further sub-  
2 groups together at least one subset of at least one of the grouped sets of warning messages,  
3 wherein each subset of warning messages identifies potential errors with respect to a  
4 particular aspect of the computer program.

1 21. The computer program product of claim 20, where the particular aspect of the  
2 computer program comprises at least one of a variable, an object, an object reference, a  
3 location in the computer program, and a condition.

1 22. The computer program product of claim 19, wherein the grouping module further  
2 super-groups together at least one superset of a plurality of the grouped sets of warning  
3 messages, wherein each superset of warning messages identifies potential errors with respect  
4 to a particular aspect of the computer program.

1 23. The computer program product of claim 22, where the particular aspect of the  
2 computer program comprises at least one of a variable, an object, an object reference, a  
3 location in the computer program, and a condition.

1 24. The computer program product of claim 19, wherein the generated result further  
2 comprises, for each grouped set, a representative suggested-fix heuristic representing the  
3 substantially similar associated suggested-fix heuristics.

1 25. The computer program product of claim 24, wherein the generated result does not  
2 include the substantially similar associated suggested-fix heuristics.

1 26. The computer program product of claim 19, wherein the generated result identifies,  
2 for each grouped set, a representative potential error representing the identified potential  
3 errors of the warning messages in the grouped set.

1 27. The computer program product of claim 19, wherein the generated result identifies,  
2 for each grouped set, a representative potential error representing a plurality of distinct  
3 potential errors identified by the warning messages in the grouped set.

1 28. The computer program product of claim 19, further comprising, when more than one  
2 suggested-fix heuristic is inferred for a corresponding identified potential error, instructions  
3 for duplicating the warning message containing the corresponding identified potential error so  
4 that the association module generates separate suggested-fix heuristic / warning message pairs  
5 for each suggested-fix heuristic of the more than one inferred suggested-fix heuristic.

1 29. The computer program product of claim 19, wherein the grouping module reorders the  
2 plurality of warning messages so as to cluster warning messages together based on classes of  
3 associated suggested-fix heuristics, and further wherein the result file generates a result  
4 comprising a subset of the clustered warning messages.

1 30. The computer program product of claim 19, wherein the substantially similar  
2 associated suggested-fix heuristics of each grouped set of warning messages are identical to  
3 each other.

1 31. The computer program product of claim 19, wherein the result file further displays  
2 one grouped set of warning messages at a time.

1 32. The computer program product of claim 19, wherein the grouping module further  
2 orders the grouped sets of warning messages based on group size, and further wherein the  
3 result file generates a result comprising a subset of the ordered group sets of warning  
4 messages.

1 33. A computer program product for use in conjunction with a computer system, the  
2 computer program product comprising a computer readable storage medium and a computer  
3 program mechanism embedded therein, the computer program mechanism comprising:  
4 a computer program;  
5 a computer program analyzer for identifying potential errors in the computer program;  
6 an inference engine for inferring, for each identified potential error, at least one  
7 potential solution;  
8 a grouping module for grouping together a set of the identified potential errors having  
9 substantially similar inferred potential solutions; and  
10 a result file for determining an actual error based on the substantially similar inferred  
11 potential solutions of the grouped set of identified potential errors.

1 34. The computer program product of claim 33, wherein the substantially similar inferred  
2 potential solutions and the grouped set of identified potential errors have characteristics  
3 suggestive of the actual error.